STATE OF ILLINOIS

ILLINOIS COMMERCE COMMISSION

Illinois Commerce Commission On Its Own Motion	))	
Consideration of the federal standard on interconnection in Section 1254 of the Energy Policy Act of 2005	)	06-0525

COMMENTS OF COMMONWEALTH EDISON COMPANY

I. Introduction.

Commonwealth Edison Company ("ComEd") submits these comments in response to the Commission's Order of July 26, 2006, ("Order") initiating this proceeding. In the Order, the Commission noted the directive contained in the Energy Policy Act of 2005 ("EPAct") that state commissions consider the standard articulated in the amendment to paragraph 15 of section 111(d) of the Public Utility Regulatory Policies Act of 1978 ("PURPA"), 16 USC 2621(d), for interconnecting generating facilities to local distribution facilities. That provision reads as follows:

> (15) Interconnection. – Each electric utility shall make available, upon request, interconnection service to any electric consumer that the electric utility serves. For purposes of this paragraph, the term 'interconnection service' means service to an electric consumer under which an on-site generating facility on the consumer's premises shall be connected to the local distribution facilities. Interconnection services shall be offered based upon the standards developed by the Institute of Electrical and Electronics Engineers: IEEE Standard 1547 for Interconnecting Distributed Resources with Electric Power Systems, as they may be amended from time to time. In addition, agreements and procedures shall be established whereby the services are offered shall promote current best practices of interconnection for distributed generation, including but not limited to practices stipulated in model codes adopted by associations of state regulatory agencies. All such agreements and procedures shall be just and reasonable, and not unduly discriminatory or preferential.

II. IEEE 1547 Is a High Level Technical Standard.

ComEd agrees with the EPAct assumption that IEEE Standard 1547 provides a sound basis for the interconnection of small generators to the electric network. However, the standard is articulated at a relatively high level and needs further clarification to give it application to real-world generators, utility operating systems, and electric networks. In addition, on its face, IEEE 1547 applies only to the interconnection of generators no larger than 10MVA and, in ComEd's experience, it is not unusual for customers with larger generators – up to 20MVA – to request service that involves interconnection with ComEd's distribution facilities. One MVA (megavolt ampere), for our purposes, is roughly equivalent to 1 megawatt (MW). One MW of capacity is about enough for 225 average households.

IEEE Standard 1547 was developed to fill a need. Historically, electric grids – otherwise known as utility electric power systems ("EPSs") – were not designed to accommodate the interconnection of active generation or electric storage at the distribution level (as opposed to the interconnection of large bulk power sources at the transmission level). Standard 1547, the IEEE Standard for Interconnecting Distributed Resources with Electric Power Systems, was developed within the Institute of Electrical and Electronics Engineers ("IEEE"), under the sponsorship of its Standards Coordinating Committee 21 on Fuel Cells, Photovoltaics, Dispersed Generation, and Energy Storage, via a collaborative process to set forth technical requirements for the interconnection of distributed generators and power sources to EPSs.

This standard focuses on the high-level technical specifications for, and testing of, the interconnection itself. It provides requirements relevant to the performance, operation, testing, safety considerations, and maintenance of the interconnection. It includes general requirements, response to abnormal conditions, power quality, "islanding", and test specifications and

requirements for design, production, installation evaluation, commissioning, and periodic tests of the interconnection.

Standard 1547 is applicable to the interconnection of distributed resources ("DRs"), including generators and power inverters/converters (e.g., devices that convert direct current electricity to alternating current) with aggregate capacity of 10MVA or less, interconnected to electric power systems at typical primary and/or secondary distribution voltages.[1] The standard primarily focuses on interconnections with radial distribution systems, although network distribution systems are considered.[2]

Without focusing on the manner in which the requirements are met, IEEE 1547 limits the effect that a DR may have on the voltage of the EPS to which it is interconnected. It also prohibits the DR from affecting the operation of network protection arrangements of the EPS – e.g., circuit breakers – and generally prohibits the DR from energizing the EPS (i.e., independently supplying voltage and/or energy to the EPS) when the EPS has been de-energized from the perspective of the utility that operates it.

Further, IEEE 1547 requires DRs over a certain size to have provisions for monitoring the connection status, real power output, reactive power output, and voltage at the point of interconnection. As an accommodation to local practices, it requires a readily accessible, lockable, visible-break isolation device to be located between the EPS and the DR unit, when required by the EPS's operating practices.

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[1] For ComEd, primary voltages from range from 4,000 to 69,000 volts (4kV to 69kV) and secondary voltages range from 120/240 to 277/480 volts.

[2] A radial distribution line is a line with only one source of power. The line originates at a substation (the power source) and typically ends with a normally open switch between two radial lines. A network distribution line has more than one source of power. The line may originate in one substation and connect to one or more additional substations without any open switches on the line between the substations. A network can be either at primary voltages or at secondary voltages.

To protect the integrity of the interconnection arrangement, IEEE 1547 requires that the arrangement be able to withstand electromagnetic interference, and voltage and current surges in accordance with other existing IEEE standards. Further, the interconnection system paralleling-device (e.g., a circuit breaker) must be capable of withstanding 220% of the interconnection system rated voltage.[3]

In addition, to further the safety of utility maintenance personnel and to avoid damage to connected equipment, IEEE 1547 specifies the type of response that the DR must make to certain abnormal conditions arising on the EPS. For example, it requires the DR to cease energizing the EPS if faults arise on the EPS circuit to which the DR is connected and to cease energizing the EPS circuit to which it is connected prior to reclosure of the circuit by the EPS. More specifically, the standard dictates "clearing times" – times by which the DR must cease to energize the EPS – if there are deviations from base system voltage or frequency. In addition, the standard specifies that, after an EPS disturbance, no DR reconnection may take place until the EPS voltage and frequency are within specified ranges and that the interconnection system must include an adjustable delay (or a fixed delay of five minutes) that may delay reconnection for up to five minutes after the EPS steady-state voltage and frequency are restored to the specified ranges.

IEEE 1547 also contains general requirements about the "quality" of the power introduced by the DR into the EPS, limiting the amount of direct current (as opposed to the EPS's alternating current) and "harmonic" current that the DR may introduce into the EPS and prohibiting the DR from causing objectionable "flicker" (i.e., the modulation of the light level of lamps) to other customers on the EPS. Direct current could cause overheating of electrical

[3] If the generator were running completely out of phase with the utility, the voltage difference across the open device would be 200% of normal voltage; the additional 20% is a safety margin.

equipment on the circuit. Disruptive harmonics can cause motors, transformers and other equipment to overheat and to operate inefficiently and sometimes even cause digital clocks to run fast. A generator can cause "flicker" if its output is not constant.[4]

Further, IEEE 1547 requires that, if an electrical "island" is unintentionally created – a situation in which the DR is energizing a portion of the EPS while that portion is electrically separated from the rest of the EPS, the DR interconnection system must detect the island situation and cease to energize the EPS within two seconds of the formation of the island. If this were not to happen, personnel working on the EPS could be injured. In addition, without the benefit of utility voltage and frequency control, other customers' equipment on the EPS could be damaged.

Finally, IEEE 1547 specifies the tests that must be performed on the DR equipment and the interconnection arrangement to demonstrate that the interconnected system meets the substantive requirements and limitations of the Standard 1547 noted above.

As noted above, the requirements of IEEE standards are high-level requirements and, generally, IEEE 1547 makes no mention of how these requirements are to be met. To facilitate the interconnection of the range of these small generators and to further the goals of the Federal Energy Regulatory Commission's ("FERC's") Order 2006,[5] ComEd has already worked with a special PJM working group to develop PJM-specific clarifications to IEEE 1547. The PJM-sponsored Small Generation Interconnection Working Group ("SGIWG") convened specifically

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[4] Some landfill gas generators can have varying outputs due to the low quality and the wet content of the landfill gas fed into an internal combustion engine prime mover. Wind turbines can also cause flicker (blade flicker). When the blades of the turbine pass in front of the tower the wind-speed is slightly reduced. This can cause the turbine to slow down slightly and speed up again when none of the blades are in front of the tower.

[5] Order 2006, issued May 12, 2005, requires all FERC-jurisdictional public utilities to file revised federal tariffs containing standard small generator interconnection procedures and a standard small generator interconnection agreement, and to provide interconnection service under them to small generating facilities of no more than 20 megawatts.

in an effort to maximize transparency and to provide necessary exceptions and application-related information in connection with PJM's acceptance of the IEEE 1547 standard and its compliance with FERC Order 2006. The SGIWG was comprised of PJM itself, ComEd, and other diverse stakeholders, including generation owners, transmission owners, other electric distribution companies, members of the small generation and distributed generation community, state agencies, the Department of Energy (DOE), and the National Renewable Energy Laboratory (NREL). SGIWG's mission was to develop consensus and to draft interconnection technical standards reasonably consistent with the industry standard IEEE 1547 and in compliance with FERC Order 2006, for adoption and application across PJM.

The two resulting PJM manuals, which will be finalized in the next few weeks, will set forth the criteria to evaluate interconnection requests (20MW and below) for the purpose of determining interconnection design and construction requirements within the PJM footprint for generators that intend to participate in the wholesale energy market and will offer clarifications on many of the IEEE 1547 technical standards and requirements.[6]

By way of example, one way in which the PJM manuals will complement IEEE 1547 is in the area of monitoring the interconnection arrangement. IEEE 1547 states only:

> Each DR of 250 kVA or more of DR aggregate or 250 kVA or more at a single PCC (point of common connection) shall have provisions for monitoring its connection status,

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[6] The two new PJM manuals will appear as attachments to PJM Manual 14b – Generation and Transmission Interconnection Planning. They are:

- **Attachment H**: Small Generator (10MW and below) Technical Requirements and Standards. A recent draft is located at: http://www.pjm.com/committees/working-groups/sgiwg/downloads/20060724-attachment-h-manual-14b-100305-2-10-mw.pdf
- **Attachment H-1**: Small Generator (10MW to 20MW) Technical Requirements and Standards. A recent draft is located at: http://www.pjm.com/committees/working-groups/sgiwg/downloads/20060724-attachment-h-1-manual-14b-040406-10-20-mw.pdf

real power output, reactive power output, and voltage at the point of DR connection. (Sec. 4.1.6)

The PJM manuals will provide more detail on how this can be accomplished in each member utility's (or transmission owner's ("TO's")) service area based on the utility's technology requirements. For example, Attachment H (for ≤ 10MW generators), in a recent draft form, provides:

> 4.1.6 Monitoring.
> [IEEE 1547 provides] "Each DR unit of 250 kVA or more or DR aggregate of 250 kVA or more at a single PCC shall have provisions for monitoring its connection status, real power output, reactive power output, and voltage at the point of DR connection". Local monitoring provisions, such as panel meters and indicating lights, may be acceptable to meet these requirements in certain cases.
>
> > a) An internet based SCADA[7] alternative (see Informative Annex #2), was developed as a reliable and economical alternative to direct SCADA communications with the TO. In addition to generally lower installed cost for the "Internet SCADA alternative", the internet on-going communication costs may be more cost effective to other alternatives, especially those that require leased telephone circuits.
> >
> > b) When full time dedicated SCADA communications are required (see Transmission Owner ("TO") listing below and refer to the SCADA REQUIREMENTS spreadsheet - Informative Annex #1) the DG Owner, PJM or the TO will provide and/or install a suitable SCADA Remote Terminal Unit in accordance with the specifications provided in Informative Annex #2 or an alternative mutually suitable to the DG Owner, Transmission Owner and PJM.
> >
> > c) The PJM TOs agree to accept the "Internet SCADA alternative" (see Informative Annex #2), in lieu of direct SCADA communications with the TO, except in circumstances where the "Internet SCADA alternative" does not meet certain TO technical requirements specified and justified by the TO.
> >
> > d) If the TO, PJM and DR owner mutually agree, specifications for other suitable interfaces between the DG and TO SCADA can be acceptable.
> > Where applicable, this approach would allow a DR owner to use a SCADA protocol of their choice and provide an interface closer to the Transmission

[7] Supervisory Control and Data Acquisition. A near real-time computer-based system used to monitor and operate substation or power plant equipment from a remote location. It usually utilizes telephone lines, microwaves or fiber optics to communicate from the equipment to the control centers.

Owner's SCADA facility. Such an installation must provide adequate communication performance, suitable to PJM and the TO.

Installation of communications facilities (internet service, leased telephone circuits, fiber optics, etc.), communications facility Operation and Maintenance, and other on-going costs are the responsibility of the Interconnection Customer.

Installation of communications facilities (typically leased telephone circuits), communications facility Operation and Maintenance, and other on-going costs are the responsibility of the Interconnection Customer.

PJM requires real-time telemetry data (MW and MVAR) for Capacity Resources, Energy Resources 10MW and above, or Energy Resources able to set LMP. PJM also requires interval revenue metering data (KWH and KVARH data at 5 minute intervals provided hourly).

See the following for specific interconnection requirements based on Transmission Owner Zone:

Allegheny Power. Requirement for SCADA is determined on a case by case basis by Allegheny Power.

American Electric Power. - Real time telemetry (SCADA) generally required for generation greater than 2.5 MW connected to the distribution system and all connections at transmission voltages.

***** [Other company references omitted.]******

Commonwealth Edison Company - Requires real-time telemetry for any interconnection of 10 MW or greater, or for interconnections of 2.5 MW or greater if transfer trip is also required for the interconnection.

*****[Other company references omitted.]******

UGI - Requires real-time telemetry (SCADA) compatible with the UGI SCADA System, for all interconnections 1MW or greater and for all 66kV and above interconnections.

ComEd exceptions to the IEEE Standard 1547 included in these two new PJM manuals, Attachments H and H-1, deal with connections to distribution secondary grid networks and distribution secondary spot networks because the current status of monitoring mechanisms would otherwise leave these networks vulnerable to safety hazards associated with switch reopenings and reclosures that would occur with the introduction of energy sources in these circumstances.

In addition, the manuals contain ComEd's requirement that trip times for frequency and voltage trips must be 1 second versus the 2 seconds in IEEE 1547.[8] This is because of the fact that the standard first circuit breaker open time in ComEd's network is 2 seconds at 12kV (i.e., fault occurs – breaker opens and stays open for 2 seconds and then closes back again). Since the interconnected generator cannot be connected to the EPS when the circuit breaker closes, the interconnection trip time must be less than the 2 seconds it will take for the ComEd breaker to reclose.

Also, ComEd has updated the technical requirements in its "Guidelines for the Interconnection of Distributed Generation" (the "DG Book") and has replaced them with two new separate technical documents developed with its sister company, PECO, in light of, and consistent with, recent FERC, PJM and state agency activity and with a determined intent to standardize (and, therefore, facilitate) interconnections in a non-discriminatory way. The new EED guidelines are compatible with PJM's new Attachment H and Attachment H-1 Technical Requirements and Standards, *supra*, and are compliant with FERC Order 2006 and Pennsylvania Public Utility Commission Rulemaking[9]. "Exelon Energy Delivery Interconnection Guidelines for Generators 2 MVA or Less" provides interconnection guidelines for small generators 2 MVA or less.[10] "Exelon Energy Delivery Interconnection Guidelines for Generators Greater than 2 MVA and Less than 20 MVA" contains interconnection guidelines for these larger generators.[11] (These documents are attached for the Commission's reference.) They are also "tiered" as has been previously suggested by the Environmental Law and Policy Center ("ELPC") in its

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[8] This is not specifically listed as an exception in the PJM manuals, since the generator must conform to the specific utility's reclosing practice.

[9] Final Rulemaking Re Interconnection Standards for Customer-generators pursuant to Section 5 of the Alternative Energy Portfolio Standards Act, 73 P.S. § 1648.5 L-00050175

[10] See http://www.exeloncorp.com/NR/rdonlyres/71890D18-6BF8-4F13-A998-298A22A4D995/2448/2MWorlessExpeditedEEDGenerationrev5.pdf.

[11] See http://www.exeloncorp.com/NR/rdonlyres/71890D18-6BF8-4F13-A998-298A22A4D995/2449/SmallGENInterconnectionGuidelinesgreaterthan2Mwbut.pdf.

comments – i.e., providing for less "burdensome", more "streamlined" requirements and processes for smaller generators. As provided in the first document, generators that are compliant with IEEE Standard 1547.1 – Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems[12] – and meet the specified screening criteria[13] will be given an expedited process, very similar to that described in Appendix E of FERC Order 2006 (provided that no other ComEd system modifications are required).

These new EED Guidelines are reference books for small generation interconnection developers, providing technical standards and requirements specific to the ComEd and PECO systems and describing the streamlined technical review associated with specific generator types. In some cases, the new EED guidelines offer greater detail than PJM's Technical Requirements and Standards. For example, the EED Guidelines provide relaying diagrams that are specific to the design of ComEd's local distribution system. In addition, the EED Guidelines include processes for witness testing of new generation interconnections that are consistent with ComEd's distribution operations.

In conclusion on this point, ComEd would request that, if the Commission decides to adopt IEEE Standard 1547 for interconnections to electric utilities' distribution (i.e., ICC jurisdictional) systems, the Commission permit utilities to specify exceptions and clarifications appropriate for their networks and systems, consistent with those specified for FERC-jurisdictional interconnections.

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[12] It requires the generator system to be type tested by a third party nationally recognized laboratory such as UL. The burden is on the generator manufacturer to have it tested. Once type tested is complete, it lessens the burden to the individual wanting to connect the type of generator since EPS does not have to perform many of the tests at the generator site.

[13] The screens are very similar to those proposed in FERC 2006 Appendix E. ComEd will do an upfront review to see if the proposed installation can be given an expedited review.

III. ComEd Interconnection Procedures Reasonably Accommodate the Needs of Small Generators.

While the forgoing discussion has focused on the technical requirements of interconnections standards, the parties have been asked to address the issues of procedures as well.

Staff has previously recommended that the Commission not engage in rulemaking regarding interconnection procedures, but rather require utilities to implement the interconnection standard via tariff provisions, thus permitting each utility, at least initially, the ability to tailor the procedures to the requirements of their own systems and processes. As Staff previously indicated, Illinois utilities either have already implemented the IEEE standard or are in the process of doing so, and a procedural rulemaking would be untimely before these implementation efforts had been given a chance to work. While a requirement to tariff procedures would itself pose significant issues, ComEd believes that it would make sense for the Commission to adopt a staged approach, like that suggested by Staff, that would permit each utility to implement the technical standards *before* trying to determine whether procedural rules are even necessary. As Staff previously noted, "By prematurely entering into such a rulemaking, the Commission may try to "solve problems that don't exist."

In this regard, ComEd would point to the fact that, since 1999 alone, it has interconnected 24 new Independent Power Producers ("IPPs") to its transmission system, totaling 8,853 MW of new generation. But, in addition to these larger generators, ComEd has also interconnected to its systems approximately 200 generator customers (including self-generation, cogeneration, waste-to-energy, hydro-electric, and large wind farm generation customers) varying in size from 75 kW to 50 MW, as well as over 175 small renewable resources under 50 kW (such as solar panels and wind turbines).

Specifically, to assist small generators in their interconnection efforts, ComEd's DG Book is available to any interconnector free of charge to provide information about technical requirements and the interconnection process. (A copy is attached for the Commission's reference.) ComEd's initial DG Book was published in 2001 to assist generators seeking interconnection through the established interconnection process for distributed resources that ComEd had used successfully for years. ComEd has had interconnection guidelines available to customers for over 20 years; and, in 2001, the DG Book was created specifically to provide a resource targeted to small generators.

The DG Book explains processes and requirements associated with the interconnection of distributed generation to the ComEd system and includes a range of information concerning rates, metering, telemetry, stability, wind and photovoltaic relay protection, application forms, inspection criteria, approval milestones and interconnection designs based on generator rating – thus providing the most detailed information available for a potential interconnector without a special study of the specifics applicable to the proposed project. Copies of the DG Book have been distributed to the Commission, the City of Chicago, the Midwest Cogeneration Association, and various distributed generation suppliers and developers. The DG Book has guided many interconnections to the ComEd system.[14]

The DG Book provides parties wishing to interconnect (referred to as "customers" in the book) a great deal of specific information concerning the interconnection process. A flow diagram of the process is shown in Figure 1. Applicants considering the installation of generation resources with a total nameplate rating of 20 MVA or less, including distributed resources meeting that definition, are encouraged to contact and consult with ComEd prior to

[14]ComEd is working to develop similar process documentation to go along with the EED Interconnection Guidelines noted above that replaced the technical requirements contained in the DG Book.

submitting a formal application for interconnection. Because every installation of distributed resources is unique to each applicant, ComEd has personnel available to discuss the interconnection process and provide applicants an overview of what is involved from planning through installation to operation of the applicant's distributed resource.

The following provides an overview of the process ComEd utilizes with a DG applicant.

After initial meetings with the ComEd Account Manager, ComEd Customer Project Management, and ComEd Engineering Department(s), the customer will submit to ComEd the necessary information (referenced in an appendix) concerning the generation installation. When the ComEd Account Manager has received all required data from the customer, a Service Estimate Request (SER) will be issued to the ComEd Distribution Planning Department and to the ComEd Substation Engineering Department. ComEd will then perform an engineering analysis. Distribution Planning is responsible for determining which ComEd line(s) the customer will be connected to. That decision is based on the customer's generating capability, line availability, and line location. When that decision is made, Distribution Planning will issue a project diagram (PD) to other concerned ComEd departments including the ComEd System Protection Department.

Upon receipt of the PD, the System Protection Department (formerly the Relay and Protection Services Group) will determine the relay requirements necessary for the protection of the ComEd system. Upon completion of this analysis, System Protection will submit its relay notes, requirements, and an estimate of the relay costs to Distribution Planning to be added to the final project diagram. System Protection will copy this information to Substation Engineering, and to Customer Project Management. System Protection will also issue required relay equipment Bill of Material to the Project Engineer.

The Substation Project Engineer then becomes the focal point of the project. He/she will take the information received and develop an interconnection design. A Service Entrance Location Sketch (supplied by a distribution customer project engineer when applicable), which details both the customer's and ComEd's responsibilities under the proposed parallel operation, will be issued. At the same time, the SER Reply will be issued detailing all ComEd charges to the customer. Both of these documents will be submitted by the ComEd Account Manager to the customer for approval. Approval of the ComEd Service Entrance Location Sketch is shown by the customer's signature on the sketch agreeing to the engineering and operating requirements of the installation. Upon receipt of approval and payment from the customer, the ComEd Account Manager will issue authorization to the ComEd Project Engineer to complete the final engineering and issue the necessary work orders to the ComEd construction departments.

The time frame between issuance of the SER to issuance of the work orders varies and is dependent upon the access and availability of information. A realistic time frame

will be provided when the ComEd Project Engineer has analyzed all the information received. The ComEd Customer Project Manager will assemble a project team made up of representatives from each of the ComEd departments that will take part in completing the project. A construction timetable will be established, and in conjunction with the customer and his representatives, the project will move towards completion within a time frame mutually agreed to by ComEd and the customer at one of the engineering project review meetings.

Before the project is completed, the System Protection Department will review and approve the customer's final design documents, which apply to protection of the ComEd system, associated not only with the generation interface but also customer protection on equipment at the interface. Any relays used to protect the ComEd system must be approved for that application. Relays not already approved for use on the ComEd system may have to be tested at the customer's expense. A partial list of approved relays is included in an appendix. Settings on the protection will also be reviewed and approved by the System Protection Department. There will also be an inspection of the interconnection and protection equipment before parallel operation performed by the System Protection Group and by ComEd Testing Group . At this point ComEd will authorize the generation installation for paralleling with the ComEd system.

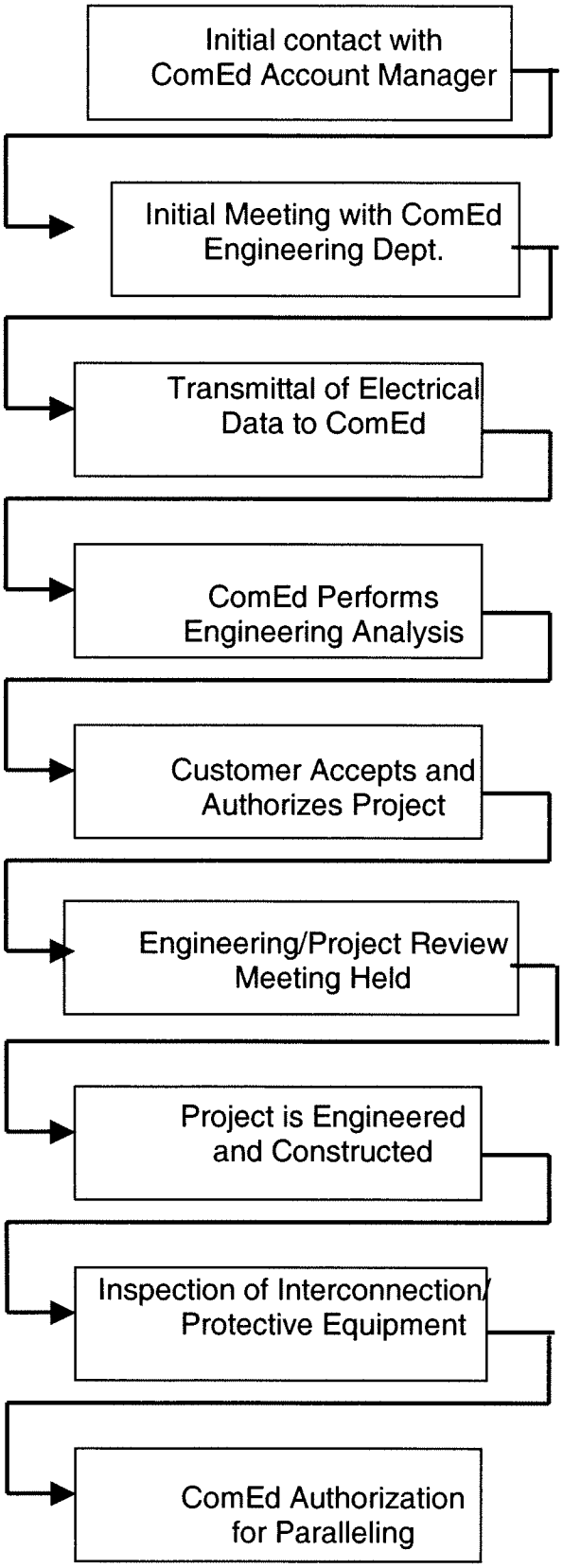
Initial contact with ComEd Account Manager
Initial Meeting with ComEd Engineering Dept.
Transmittal of Electrical Data to ComEd
ComEd Performs Engineering Analysis
Customer Accepts and Authorizes Project
Engineering/Project Review Meeting Held
Project is Engineered and Constructed
Inspection of Interconnection/ Protective Equipment
ComEd Authorization for Paralleling

FIGURE 1

The DG Book specifically encourages potential interconnectors to discuss plans with their ComEd Account Manager early in the design stage before developing final prints or ordering equipment to help avoid unnecessary or unforeseen costs involving the generator's connections, interface connections, or ComEd system changes or scheduling concerns. In addition, the DG Book specifically cautions that the initial electrical configuration/design for parallel generation can be greatly affected by ComEd system connections to the DR as well as the overall system voltage and circuits in the vicinity. For example, the DG Book explains that there may be other generators on the existing ComEd circuits. Additional generation can cause stability problems or unacceptably high fault currents, thereby exceeding DR and ComEd equipment fault interrupting capability. Also, the existing ComEd supply may be from a low voltage network, which is not compatible with generation.

In addition, the DG Book recommends that the applicant engage in early discussions with ComEd to determine what elements of the project may require substantial lead times. Such lead times can be attributed to the acquisition and installation of new protective devices or system reconfiguration necessary before parallel operation can be safely allowed.

Finally, the DG Book advises that, if an applicant desires preliminary cost estimates to evaluate the installation of parallel generation, possibly with alternatives, ComEd will require information outlined in an appendix covering various technical information in regards to the applicant's generator(s) and proposed interconnection to the ComEd system. Based on the information submitted, ComEd will provide a preliminary estimate of costs for parallel operation and initial connection and any protection concerns.

If an applicant is considering interconnection of photovoltaic or wind renewable electricity generation resources 40 kilowatts and smaller for parallel operation with ComEd's

system, he/she may contact ComEd at 1-800-TALKGEN. From this point of contact, the applicant will be guided by ComEd personnel dedicated to working with this type of distributed resource. These applicants will typically follow an abbreviated technical review process. The brochure "ComEd Interconnection Guidelines for Wind and Photovoltaic Generation Systems" provides the applicant with an overview of technical requirements. (A copy of the brochure is attached for the Commission's reference.)[15] Prior to commencement of parallel operation with the ComEd system, ComEd personnel may inspect the installation to ensure that all ComEd requirements are satisfied. Once ComEd determines that the installation has met the requirements, ComEd will authorize the wind or photovoltaic system for parallel operation.

In summary, ComEd's interconnection processes have provided a reasonable accommodation between the needs of ComEd for system integrity, reliability, service quality and safety and the needs of small generators wishing to interconnect with ComEd's system.

Respectfully submitted,
COMMONWEALTH EDISON COMPANY

By: 

E. Glenn Rippie
Foley & Lardner LLP
321 N. Clark, Suite 2800
Chicago, IL 60610
(312) 832-4910
grippie@foley.com

Michael S. Pabian
Assistant General Counsel
Exelon Business Services Company
10 South Dearborn Street, 35th Floor
Chicago, Illinois 60603
(312) 394-5831
michael.pabian@exeloncorp.com

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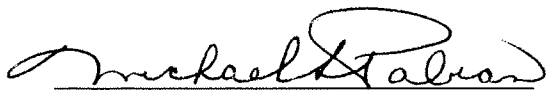
[15] The brochure and an interconnection application are posted on the Chicago Solar Partnership website at http://www.chicagosolarpartnership.com. Links to this website are also found on the ComEd web site in the Residential "Energy Education" page, http://www.exeloncorp.com/ourcompanies/comed/comedres/energy_education/, and on the ComEd CARE web site on the "Find Rebates and Incentives" page, http://www.exeloncorp.com/ComedCare_Main/ComedCare/act/FindRebatesIncentives/.

Certificate of Service

I, Michael S. Pabian, hereby certify that I have served a copy of the foregoing Comments of Commonwealth Edison Company on the parties by electronic mail, this 30th day of January, 2007.



Michael S. Pabian